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NRC ISSUES FINAL RULE MODIFYING SEISMOLOGICAL STANDARDS FOR DRY CASK SPENT FUEL STORAGE

The Nuclear Regulatory Commission is issuing a final rule modifying seismological standards for dry cask storage of spent nuclear fuel in certain parts of the country.

The final rule will apply to new applications for independent spent fuel storage installations (ISFSIs) or Department of Energy monitored retrievable storage (MRS) installations to be located in the western United States or in earthquake-prone areas of the eastern United States.

The modifications will make the siting and design criteria for dry storage more risk-informed and will require that uncertainties be considered in seismic hazard evaluations. Reflected in these changes are agency experience gained in licensing dry cask storage facilities and rapid advancements in the earth sciences and earthquake engineering.

These modifications will (1) require certain specific-license applicants for a dry storage facility to account for uncertainties in their seismic evaluations by using probabilistic seismic hazard analysis methods or other suitable sensitivity analyses; (2) allow the ISFSI or MRS applicants to use a design earthquake ground motion appropriate for and commensurate with the risk associated with an ISFSI or MRS; and (3) require general licensees to conduct analyses to determine whether the designs of cask storage pads and areas adequately account for dynamic loads, in addition to static loads.

Current NRC regulations require ISFSI and MRS applicants to use a deterministic model to estimate the risk of earthquake damage, the same method of assessment used for nuclear power plants. This approach (outlined in Title 10 of the Code of Federal Regulations, Part 100, Appendix A) prescribes rules for locating potential earthquakes and calculating ground movement during earthquakes. This approach proved unwieldy in practice, and in 1996 the NRC amended other regulations allowing use of newer, probabilistic analysis methods in siting future nuclear power plants. The probabilistic approach provides needed flexibility given limitations in data and advances in geoscience. The new final rule will harmonize the approaches for ISFSIs and MRS facilities with those now in effect for nuclear power plants.

ISFSI and MRS facilities are designed and constructed for the interim storage of spent nuclear fuel and other wastes from nuclear power plant operations pending shipment to a high-level radioactive waste repository or other disposal facility. The spent fuel is cooled for at least one year, and generally

five years, in spent fuel pools before being put into dry casks. The casks are robust structures designed to withstand events potentially more damaging than earthquakes, such as cask drops, tip-overs, tornadoes, and wind-driven projectiles. The NRC believes, therefore, that the cask designs assure low probabilities of failure from earthquakes. In addition, the radiological consequences to workers and the public from a potential cask failure are low, because the spent fuel has cooled usually for five years, making it significantly less radioactive.

The changes were published as a proposed rule on July 22, 2002, with an opportunity for the public to comment. A summary of public comments and NRC responses will be included in the *Federal Register* notice announcing the final rule, which is expected shortly. The final rule will become effective 30 days from publication in the *Federal Register*.

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